Comparisons of Job Characteristics

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 67

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Biology	3.7	20.3	6.8	<<	Extensive education and/or training may be required
Chemistry	4.8	16.3	21.8	>>	Current knowledge level is likely more than sufficient
Engineering and Technology	5.7	14.3	9.8	<<	Extensive education and/or training may be required
Production and Processing	6.0	12.7	11.3	<	Expanded education and/or training may be required
Physics	4.3	10.0	9.1	0	Current knowledge level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 84

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Writing	9.2	16.5	13.0	<<	Extensive development of skills in this area may be required
Reading Comprehension	10.7	16.4	15.7	0	Current skill level may be sufficient
Science	4.5	16.3	17.3	0	Current skill level may be sufficient
Active Learning	8.7	16.1	11.4	<<	Extensive development of skills in this area may be required
Critical Thinking	10.8	15.9	12.5	<<	Extensive development of skills in this area may be required
Judgment and Decision Making	9.4	14.1	10.2	<<	Extensive development of skills in this area may be required

Learning Strategies	7.2	13.2	8.3	<<	Extensive development of skills in this area may be required
Mathematics	6.2	12.7	11.4	<	A higher skill level may be required
Systems Analysis	6.5	11.1	8.6	<	A higher skill level may be required
Programming	2.2	7.0	3.3	<<	Extensive development of skills in this area may be required
Technology Design	2.6	6.3	2.9	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 97

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Written Expression	9.8	17.8	13.4	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	17.5	13.8	<<	Extensive improvement in abilities may be required
Oral Expression	12.4	17.0	14.1	<	Some improvement in abilities may be required
Written Comprehension	11.0	16.4	14.9	<	Some improvement in abilities may be required
Category Flexibility	9.0	16.1	13.6	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	16.0	13.6	<	Some improvement in abilities may be required
Oral Comprehension	12.5	15.9	15.9	0	Current ability level may be sufficient
Speech Clarity	10.2	15.4	9.3	<<	Extensive improvement in abilities may be required
Originality	7.6	15.2	9.3	<<	Extensive improvement in abilities may be required
Information Ordering	9.9	14.8	12.8	<	Some improvement in abilities may be required
Fluency of Ideas	7.6	14.4	9.7	<<	Extensive improvement in abilities may be required
Flexibility of Closure	7.8	12.5	10.7	<	Some improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise clients or customers	19
Advise governmental or industrial personnel	28
Analyze chemical experimental, test, or analysis data or findings	69
Analyze scientific research data or investigative findings	27
Classify plants, animals, or other natural phenomena	69
Collect scientific or technical data	30
Collect statistical data	47
Communicate technical information	4
Conduct analyses or tests of organic compounds	71
Conduct laboratory research or experiments	57
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Design equipment, apparatus, or instruments for scientific research	87
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop scientific or mathematical hypotheses, theories, or laws	62
Develop tables depicting data	33
Direct and coordinate scientific research or investigative studies	27
Direct implementation of new procedures, policies, or programs	60
Explain complex mathematical information	30
Follow safe waste disposal procedures	50
Forecast or predict phenomena based upon research data	71
Identify nutritional value of foods	87
Maintain records, reports, or files	5
Make decisions	24
Make presentations	13
Monitor the chemical action of substances	95
Operate specialized equipment in chemical laboratory	95
Perform statistical analysis in physical science or geological research	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Recommend further study or action based on research data	60
Record test results, test procedures, or inspection data	48
Resolve engineering or science problems	46
Use chemical testing or analysis procedures	54
Use computers to enter, access or retrieve data	3
Use hazardous materials information	35
Use knowledge of investigation techniques	16
Use laboratory equipment	60

Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use nutrition research techniques	81
Use oral or written communication techniques	1
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21
Use spreadsheet software	18
Use word processing or desktop publishing software	17
Write business project or bid proposals	48
Write research or project grant proposals	33
Write scholarly or technical research papers	36

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 87

Focus Occupation: Chemists (19-2031)
Associated Occupation: Biochemists and Biophysicists (19-1021)

Tools and Technologies	Exclusivity
Business function specific software	1
Cameras	2
Chemical evaluation instruments and supplies	10
Chromatographic measuring instruments and accessories	16
Clinical and diagnostic analyzers and accessories and supplies	18
Computer printers	2
Computers	1
Content authoring and editing software	1
Crystallography equipment	23
Data management and query software	1
Development software	4
Electrochemical measuring instruments and accessories	9
Fluid mechanics equipment	11
Gas analyzers and monitors	10
General laboratory glassware and plasticware and supplies	13
Histology equipment	35
Indicating and recording instruments	2
Industry specific software	1
Laboratory baths	24
Laboratory blending and dispersing and homogenizing equipment and supplies	27
Laboratory centrifuges and accessories	13
Laboratory cooling equipment	25
Laboratory decanting and distilling and evaporating and extracting equipment and supplies	19

Laboratory electron and solid state physics equipment	29
Laboratory electrophoresis and blotting system and supplies	26
Laboratory enclosures and accessories	17
Laboratory environmental conditioning equipment	24
Laboratory freeze dryers and lyopholizers and accessories	40
Laboratory heating and drying equipment	13
Laboratory incubating equipment	20
Laboratory mixing and stirring and shaking equipment and supplies	19
Laboratory ovens and accessories	15
Laboratory pumps and tubing	23
Light and wave generating and measuring equipment	4
Liquid and gas flow measuring and observing instruments	15
Network applications software	1
Pharmaceutical industry machinery and equipment and supplies	31
Pipettes and liquid handling equipment and supplies	16
Spectroscopic equipment	10
Temperature and heat measuring instruments	6
Test Tubes	26
Viewing and observing instruments and accessories	4
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.